

Quiz 5.1-5.3 Friday

Quiz 5.4 Wednesday

5-3 Dividing Polynomials

$$\begin{array}{r} \text{Poly} \\ \text{Mono} \end{array} \quad \frac{5a^2b - 15ab^3 + 10a^3b^5}{5ab}$$

$$\frac{5a^2b}{5ab} - \frac{15ab^3}{5ab} + \frac{10a^3b^5}{5ab}$$

$$a - 3b^2 + 2a^2b^4$$

$$\begin{array}{r} \text{Poly} \\ \text{Binomial} \end{array}$$

$$\begin{array}{r} 24 \\ 5 \overline{)120} \\ \underline{-10} \downarrow \\ 20 \\ \underline{-20} \\ 0 \end{array}$$

$$\begin{array}{r} 30 \frac{3}{5} \\ 5 \overline{)153} \\ \underline{-15} \downarrow \\ 3 \\ \underline{-3} \\ 0 \end{array}$$

ex:

$$\begin{array}{r} 3y^3 - 5y^2 + y - 6 \\ y-2 \end{array}$$

$$3y^2(4-2) \quad \boxed{3y^2 + y + 3}$$

$$y-2 \overline{)3y^3 - 5y^2 + y - 6}$$

$$\begin{array}{r} \underline{-3y^3 + 6y^2} \downarrow \\ -y^2 + y \\ \underline{-y^2 + 2y} \downarrow \\ 3y - 6 \\ \underline{-3y + 6} \\ 0 \end{array}$$

ex:

$$\begin{array}{r} 4x^4 - 19x^3 + 5x + 1 \\ 4x - 3 \end{array}$$

Missing a term so * Place holder

$$x^3 - 4x^2 - 3x - 1 - \frac{3}{4x}$$

$$4x - 3 \overline{)4x^4 - 19x^3 + 0x^2 + 5x + 1}$$

$$\begin{array}{r} \underline{-4x^4 + 3x^3} \downarrow \\ -16x^3 + 0x^2 \\ \underline{+16x^3 - 12x^2} \downarrow \\ -12x^2 + 5x \\ \underline{+12x^2 - 9x} \downarrow \\ -9x + 1 \\ \underline{+9x - 3} \\ -2 \end{array}$$

Synthetic Division

where "x - c" is the divisor

$$c = 2$$

ex:

$$\begin{array}{r} 3y^3 - 5y^2 + y - 6 \\ y-2 \end{array}$$

$$2 \overline{)3 \ -5 \ 1 \ -6}$$

$$\begin{array}{r} \downarrow 6 \ 2 \ 6 \\ 3 \ 1 \ 3 \ 0 \end{array}$$

← Remainder

$$\boxed{3y^2 + y + 3}$$

~~Do:~~

$$\begin{array}{r} 2t^4 + 5t^3 - 4t^2 + 9 \\ \underline{t + 3} \end{array}$$

place holder

$$\begin{array}{r} -3 \overline{) 2 \ 5 \ -4 \ 0 \ 9} \\ \underline{ 2 \ -6 \ 3 \ 3 \ -9} \\ 2 \ -1 \ -1 \ 3 \ 0 \end{array}$$

$2t^3 - t^2 - t + 3$

ex:

$$\begin{array}{r} 4x^4 - 19x^3 + 5x + 1 \\ \underline{4x - 3} \end{array}$$

$\leftarrow 4(x - \frac{3}{4})$

$$\begin{array}{r} 1 \overline{) 4x^4 - 19x^3 + 5x + 1} \\ \underline{ 4x^4 - 12x^3} \\ 7x^3 \end{array}$$

$$\begin{array}{r} 3/4 \overline{) 4 \ -19 \ 0 \ 5 \ 1} \\ \underline{ 4 \ -12} \\ 7 \end{array}$$

$$\begin{array}{r} 1 \overline{) 7x^3 - 16x^2 - 12x - 4} \\ \underline{ 7x^3 - 16x^2 - 12x - 4} \\ 0 \end{array}$$

$x^3 - 4x^2 - 3x - \frac{2}{x-3}$

HW

p236-237

15, 18, 33-41 odd

(Do 2 long and 3 synthetic)